

Plasma jet sputtering as an efficient method for the deposition of nickel and cobalt mixed oxides on stainless-steel meshes: application to VOC oxidation

Květa Jirátová ^{1,*}, Martin Čada ², Iryna Naiko ^{2,3}, Alina Ostapenko ², Jana Balabánová ¹, Martin Koštejn ¹, Jaroslav Maixner ⁴, Timur Babii ⁵, Pavel Topka ¹, Karel Soukup ¹, Zdeněk Hubička ² and František Kovanda ⁵

¹ Institute of Chemical Process Fundamentals of the Czech Academy of Sciences, Rozvojová 135, 165 02 Prague, Czech Republic; jiratova@icpf.cas.cz

² Institute of Physics of the Czech Academy of Sciences, Na Slovance 2, 182 21 Prague, Czech Republic

³ Faculty of Mathematics and Physics, Charles University, V Holešovičkách 2, 180 00 Prague, Czech Republic

⁴ Central Laboratories, University of Chemistry and Technology, Prague, Technická 5, 166 28 Prague, Czech Republic

⁵ Department of Solid State Chemistry, University of Chemistry and Technology, Prague, Technická 5, 166 28 Prague, Czech Republic

Table S1. Average atomic concentrations, determined by EDX, of components deposited on stainless steel meshes by plasma jet sputtering

| Sample | C | O | Al | Si | Cr | Fe | Co | Ni | Ni correction ^a |
|------------------------|------|-------|------|------|------|-------|-------|-------|----------------------------|
| Co ₁₅ | 5.66 | 46.23 | | | 3.85 | 11.58 | 31.46 | 1.23 | 0 |
| NiCo14 ₁₅ | 5.29 | 47.96 | 0.17 | 0.11 | 2.59 | 7.13 | 28.47 | 8.29 | 0.90 |
| NiCo11 ₁₅ | 5.57 | 44.40 | 0.10 | 0.16 | 5.00 | 16.21 | 12.85 | 15.71 | 0.88 |
| NiCo41 ₁₅ | 5.31 | 46.03 | 0.08 | 0.15 | 4.07 | 12.64 | 14.66 | 17.05 | 0.92 |
| Ni ₁₅ | 5.98 | 43.35 | 0.12 | 0.18 | 3.59 | 11.40 | 6.83 | 28.54 | 0.95 |
| NiCo11 ₁₅ * | 9.44 | 41.71 | | | 4.10 | 13.11 | 0.25 | 31.39 | 0.95 |
| Co ₈₀ | 5.64 | 49.62 | | | 1.28 | 3.30 | 19.55 | 20.61 | 0.98 |
| NiCo14 ₈₀ | 5.76 | 43.74 | | | 5.04 | 15.83 | 28.10 | 1.54 | 0 |
| NiCo11 ₈₀ | 4.80 | 43.93 | 0.23 | 0.13 | 4.55 | 14.42 | 24.04 | 7.90 | 0.80 |
| NiCo41 ₈₀ | 5.26 | 48.34 | 0.15 | 0.05 | 2.75 | 7.94 | 16.72 | 18.78 | 0.95 |
| Ni ₈₀ | 5.43 | 48.88 | 0.09 | 0.10 | 2.27 | 6.40 | 17.58 | 19.25 | 0.96 |
| NiCo11 ₁₆₀ | 6.12 | 46.14 | 0.13 | 0.13 | 2.69 | 8.46 | 7.20 | 29.12 | 0.96 |
| Co ₁₅ | 8.06 | 37.84 | | | 5.72 | 18.79 | 0.26 | 29.34 | 0.93 |
| NiCo14 ₁₅ | 5.69 | 48.99 | | | 1.82 | 4.75 | 19.16 | 19.59 | 0.97 |

^a Ni correction ratio determining portion of Ni originating from the NiCo catalyst

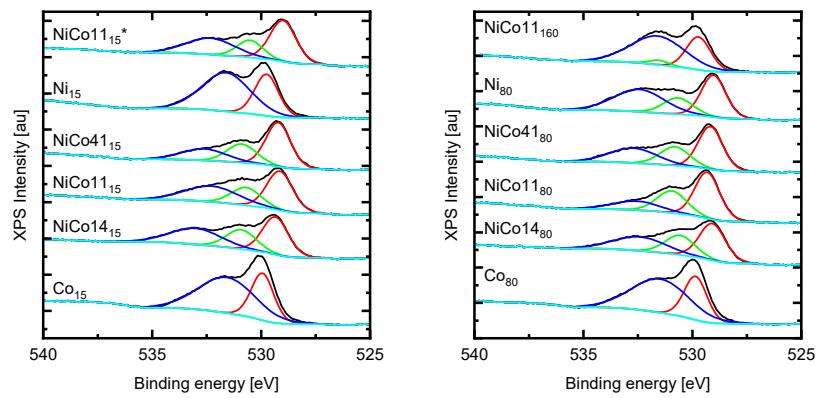


Figure S1. Deconvolution of O 1s spectra of the investigated samples.